SAKAYEVA, Ye. A.

JPRS 55569
29 May 72

UDC: 615.356:577.163.33.035:796

EXPERIENCE WITH VITAMIN E SUPPLEMENT FOR BICYCLE RACERS AND SKIERS

[Article by Ye.A. Sakayeva, V.V. Yefremov, Institute of Nutrition, USSR Academy of Medical Sciences, and Central Institute of Physical Culture, Moscow; Voprosy Meditsinskoy Khimii, Moscow, No 2, 1972, pp 52-55]

Vitamin E has a very broad biological action. Most significant is its role in oxidant-reducing processes as a participant in biosynthesis of coenzyme Q (ubiquinone [1]) and as a biological antioxidant. Together with vitamin A it regulates the resistance of cellular membranes and intracellular organelles, and it participates in biosynthesis of fats and phospholipids.

For this reason, it is not by chance that doctors and trainers who use vitamins in athletic practice with success were interested in vitamin E. A vitamin E supplement in the diet of athletes during training and competitions yielded encouraging results. For example, Dragan (1960, 1964) reports that vitamin E increases athletic efficiency, diminishes fatigue, and stimulates mental activity.

According to the data of Prokop, vitamin E is instrumental in more economic expenditure of oxygen by tissues during physical stress. These facts are confirmed by Japanese investigators (Tatsuo Nagawa et al.) who made a study of bicycle racers at sea level and at an altitude of 2700-2900 meters. Analogous data were obtained by the Soviet investigators, R. Berezman and Ye. Kushnirenko, who observed bicycle racers for two years and found that under the influence of vitamin E there was normalization of cholesterol and protein fractions, decrease in blood sugar after a measured load. The athletic indices were higher among bicycle racers who received a vitamin E supplement. However, the authors used different doses of vitamin E from 60 to 1500 mg per day (Dragan; Dragan; Prokop; Tatsuo Nagawa et al.; R. Berezman and Ye. Kushnirenko; Cureton).

On the basis of the foregoing, our objective was to investigate the availability of vitamin E to the organism during heavy physical work in order to obtain initial data for development of norms for vitamin E intake under such conditions.

USSR

UDC 539.376:534.1

IL'GAMOV, M. A., SAKHABUTDINOV, Zh. M., SHAKIR'YANOV, M. M.

"Nonlinear Radial Oscillations of a Cylindrical Shell Filled With a Compressible Liquid"

V sb. Konf. po kolebaniyam mekh. sistem. Tezisy dokl. (Conference on Oscillations of Mechanical Systems. Abstracts of the Reports), Kiev, "Nauk. dumka", 1971, p 44 (from RZh-Mekhanika, No 10, Oct 71, Abstract No 10V271)

Translation: The paper deals with the problem of forced steady-state oscillations of an ideal compressible liquid contained between two infinitely long circular cylindrical shells. The inner cylinder is a source of harmonic radial perturbations. Finite deformations of a "rubber-like" elastic outer cylinder are considered in the nonresonance case. The equation of motion of the ideal liquid is written in Lagrangian coordinates, which facilitates satisfaction of the contact boundary conditions.

An approximate solution is found by the method of successive iterations as applied to equations of motion of liquid and shell. The effect of various parameters on the oscillatory process is numerically analyzed in the second approximation.

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1/2 017 UNCLASSIFIED PROCESSING DATE--30OCT7C

TITLE--EFFECT OF DOSATED PHYSICAL EXERCISE ON MYOCARDIAL FUNCTION IN CORONARY INSUFFICIENCY IN PATIENTS OF DIFFERENT AGE -U-

AUTHOR-(03)-SAKHARCHUK, I.I., ZAPESOCHNYY, A.Z., PARKHOTIK, I.I.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 4, PP 55-58

DATE PUBLISHED----------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, EXERCISE, CORONARY BLOOD CIRCULATION, CARDIOVASCULAR SYSTEM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3001/1956 STEP NO--UR/0475/70/000/004/0055/0058

CIRC ACCESSION NO--AP0127357

UNCLASSIFIED

2/2 017 UNCLASSIFIED

CIRC ACCESSION NO--AP0127357 PROCESSING DATE--30OCT7(

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A STUDY OF 82 PATIENTS WITH MYOCARDIAL INFARCTION AND POSTINFARCTION CARDIOSCLEROSIS INDICATES THAT ADEQUATELY CHOSEN AND DOSATED PHYSICAL EXERCISE EXERTS A FAVOURABLE EFFECT ON THE CORONARY BLOOD CIRCULATION AND CONTRACTILE CAPACITY OF THE MYOCARDIUM. TIMING OF EXERCISE THERAPY AND TOTAL DOSE OF PHYSICAL LOADS SHOULD BE STRICTLY INDIVIDUAL DEPENDING ON THE CLINICAL PICTURE AND PERIOD OF INFARCTION. THE RESPONSE OF THE CARDIOVASCULAR SYSTEM TO PHYSICAL LOADS SHOULD BE REGULARLY CONTROLLED BY MEANS OF FUNCTIONAL TESTS.

UNCLASSIFIED

1/2 031 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--CHANGES OF THE ELECTRICAL ACTIVITY OF THE MYOCARDIUM DEPENDING ON THE AGE OF PATIENTS WITH CHRONIC CORONARY INSUFFICIENCY -U-

AUTHOR--SAKHARCHUK, I.I., PARKHOTIK, I.I.

COUNTRY OF INFO--USSR

SOURCE--VRACHEBNOYE DELO, 1970, NR 3, PP 97-99

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MYOCARDIUM, ELECTROPHYSIOLOGY, ELECTROCARDIOGRAPHY, GERIATRICS, ATHEROSCLEROSIS, HEART DISEASE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1986/0958 STEP NO--UR/0475/70/000/003/0097/0099

CIRC ACCESSION NO--AP0102897

UNCLASSIFIED

2/2 031 UNCLASSIFIED

CIRC ACCESSION NO--AP0102897 PROCESSING DATE--11SEP70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ELDERLY AND OLD PATIENTS WITH CHRONIC CORONARY INSUFFICIENCY SHOW A REDUCED FUNCTION OF THE SINUS AND ATRIOVENTRICULAR NODES AND A REDUCED CONTRACTILE CAPACITY OF THE MIOCARDIUM. WITH AGE THESE PATIENTS SHOW CHANGES OF CARDIAC SENSIBILITY TO THE EFFECT OF NEURAL AND HUMORAL STIMULATORS. ECG DISORDERS ARE MORE MARKED IN ELDERLY PATIENTS WITH CORONARY SCLEROSIS THAN IN AVERAGE AGED AND SENILE PATIENTS. THE ELECTRICAL ACTIVITY AND MYOCARDIAL FUNCTION LARGELY DEPEND ON THE DEVELOPMENT OF COLLATERAL CIRCULATION WHICH IS BETTER DEVELOPED IN SENILE PATIENTS WITH STENOSING CORONARY ATHEROSCLEROSIS THAN IN ELDERLY PATIENTS.

UNCLASSIFIED

USSR

UDC 577.1:615.7/9

PIDEMSKIY, Ye. P., and SAKHARNAYA, T. YA.

"Effect of Diantipyrilmethane on the Distribution of Thorium in White Rat Organs"

Izv. Yestestvennonauchn. in-ta pri Permsk. un-te (News of the Institute of Natural Sciences, Perm University), 1970, 14, No 10, pp 103-106 (from RZh-Biologicheskaya Khimiya, No 9, May 71, Abstrast No 9 R1903 by M. Sh.)

Translation: Rats were injected intraperitoneally with $Th(NO_3)$ once or once a week for 7 weeks (single dose 100 mg/kg). Some of the animals were also injected with diantipyrilmethane (I). The Th content in the spleen was higher than in the liver and it was 4 to 5 times higher after a single injection than after repeated injections. The Th concentration of the blood was virtually equal to the control (without I). The authors concluded that I had little effect on the distribution of Th in organs or on its excretion with urine.

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USSR

UDC 577.1:615-7/9

PIDEMSKIY, Ye. L., and SAKHARNAYA, T. Ya.

"Effect of Diantipyrilmethane on the Course of Chronic Mercury Poisoning in White Rats"

Izv. Yestestvennonauchn. in-ta pri Permsk. un-te (News of the Institute of Natural Sciences, Perm University), 1970, 14, No 14, pp 107-112 (from RZh-Biologicheskaya Khimiya, No 9, May 71, Abstract No 9 F1901 from the résumé)

Translation: In white rats chronically poisoned with mercury, the injection of diantipyrilmethane (200 mg/kg daily for 90 days) helped to reduce the accumulation of mercury in the liver and kidneys. It had no perceptible effect on the excretion of mercury with urine.

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AA0040652

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 1-70

240888 REMOVING OF BURRS IN ELECTRICAL RESISTANCE WELDING OF PLATES, involves using knives 7 which cut off burrs on the two sides of the plates after completing the upsetting stroke. The two welded plates 12 are held in clamping blocks 1', 1, and 2,2'.which in welding operation are driven one against the other till the clearances between the blocks and central welding unit (parts 3 and 4) become zero. At that instant the knives which are electrically insulated from the rest of the machine are pushed forward, remove the burrs and also plastically deform the weld which considerably improves its quality.

AUTHORS: Tishura, V. I.; Sakharnov, V. A.; Galyan, B. A.; Yavorskiy, Yu. D.; and Sakhatskiy, G. P.

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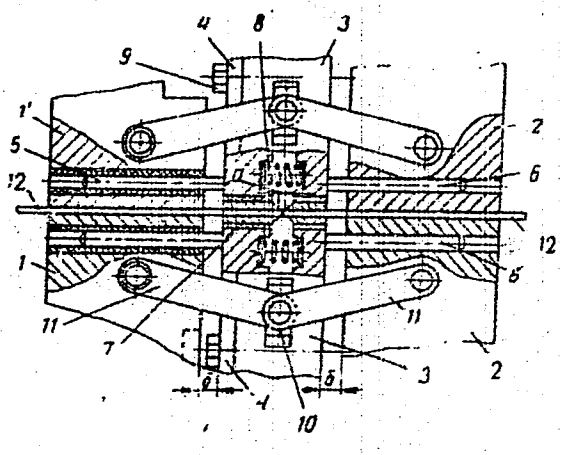
AA0040652



3.4.67 as 1144854/25-27 Add to 217556. V.I.TISHURA et alia. E.O. PATON'S ELECTRICAL WELDING INST. (22.8.69) Bul 13/1.4.69. Class 21h. Int.Cl.H 05b.

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Institut Elektrosvarki imeni E. O. Patona

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Corrosion

S

UDC 620.193.4:669.24'28

SVISTUNOVA, T. V., FUNOVA, Z. K., and SAKHAROV, A. A., Central Scientific Research Institute of Ferrous Metallurgy

"Knife-Line Corrosion in Ni-Mo Alloys"

Moscow, Metallovedeniye, No 5, May 70, pp 2-6

Abstract: An investigation was made of the specific and combined effect of carbon (0.02 and 0.04%) and iron (5% max) on the degree of knife-line corrosion in N70M27 and N70M27F (1.45-1.65% V) alloys and of their crystal structure and phase composition after heating to 1150-1300°C.

Sheets 3 mm thick were water quenched from 1150°C after furnace heating, and then quenched after induction heating at 1000-1300°C and after welding. Welding was done on sheet measuring 3 x 100 x 150 mm using the TIG method.

Analysis of the obtained data revealed that in the process of superheating the heat-affected zone of welds (above 1250°C), structural changes take place that promote knife-line corrosion in the N70M27F alloy with 0.04% C and 1.5-2% Fe. Dissolving of the M_6C carbides and redistribution of the alloying elements begins with carbon, which is concentrated in the grain boundaries and causes the formation of eutectic dendritic carbides M_6C and Mo_2C, which leads to the formation of

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SVISTUNOVA, T. V., et al., Metallovedeniye, No 5, May 70, pp 2-6

molybdenum-enriched boundary zones.

To inhibit knife-line corrosion in the N70M27F alloy, the carbon and iron content should not exceed 0.02 and 1%, respectively. Emergence of knife-line corrosion in the superheated zone of N70M27F weld samples with an increased iron and carbon content causes the formation of a solid matrix of M_6C and Mo_2C dendritic carbides in the grain boundaries.

Knife-line corrosion in Ni-Mo alloys can be eliminated by heat treating the weld joints at 1050-1100°C with subsequent air or water quenching.

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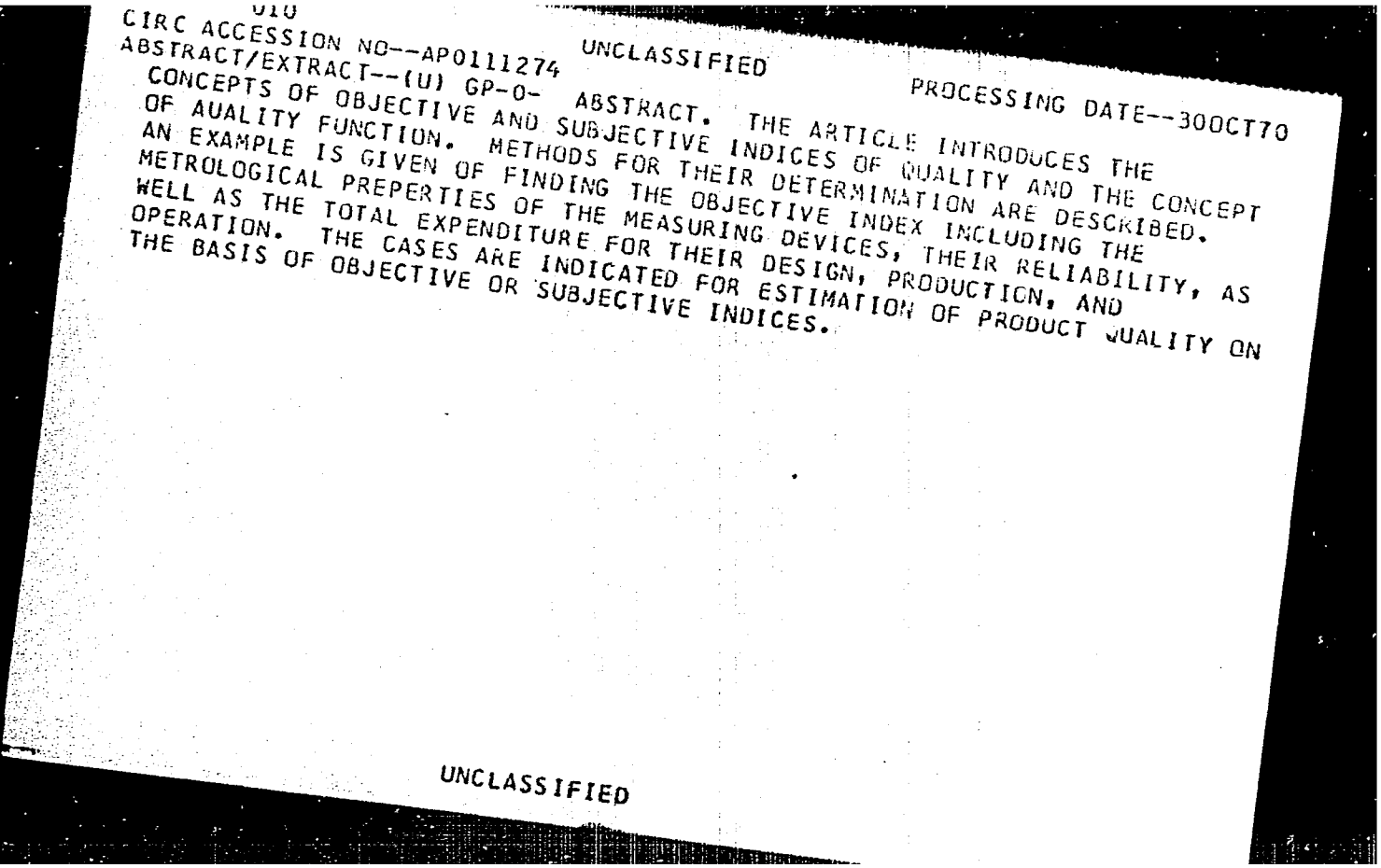
472 010 UNCLASSIFIED PROCESSING DATE--30OCT70
TITLE--QUANTITATIVE ESTIMATION OF QUALITY OF MEASURING DEVICES -U-
AUTHOR-(02)-SAKHAROV, A.P., TERENTYEV, O.I.
COUNTRY OF INFO--USSR
SOURCE--STANDARTY I KACHESTVO, 1970, NR 3, PP 26-28
DATE PUBLISHED-------70
SUBJECT AREAS--METHODS AND EQUIPMENT, MECH., IND., CIVIL AND MARINE ENGR
TOPIC TAGS--QUALITY CONTROL, MEASUREMENT, ERROR ANALYSIS, SCIENTIFIC INSTRUMENT R AND D
CONTROL MARKING--NO RESTRICTIONS
DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1992/0080 STEP NO--UR/0422/70/000/003/0026/0028
CIRC ACCESSION NO--AP0111274
UNCLASSIFIED



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CIRC ACCESSION NO--AP0111274 UNCLASSIFIED PROCESSING DATE--30OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ARTICLE INTRODUCES THE CONCEPTS OF OBJECTIVE AND SUBJECTIVE INDICES OF QUALITY AND THE CONCEPT OF AUALITY FUNCTION. METHODS FOR THEIR DETERMINATION ARE DESCRIBED. AN EXAMPLE IS GIVEN OF FINDING THE OBJECTIVE INDEX INCLUDING THE METROLOGICAL PREPERTIES OF THE MEASURING DEVICES, THEIR RELIABILITY, AS WELL AS THE TOTAL EXPENDITURE FOR THEIR DESIGN, PRODUCTION, AND OPERATION. THE CASES ARE INDICATED FOR ESTIMATION OF PRODUCT QUALITY ON THE BASIS OF OBJECTIVE OR SUBJECTIVE INDICES.

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APPROVED FOR RELEASE: 08/09/2001 CIA-RDP86-00513R002202730007-8"

USSR

UDC 539.3

VAYNBERG, D. V., SAKHAROV, A. S., KIRICHEVSKIY, V. V.

"Derivation of the Matrix for the Rigidity Characteristics of a Discrete Element of Arbitrary Shape"

Soprotivl. materialov i teoriya sooruzh. Resp. mezhved. nauch. sb. (Resistance of Materials in the Theory of Structures. Republic Interdepartmental Scientific Collection), 1971, No. 14, pp 37-44 (from RZh-Mekhanika, No 3, Mar 72, Abstract No 3V166)

Translation: The solution of the three-dimensional problem of elasticity theory and the problem of the bending of plates and shells is solved using the method of a discrete element of arbitrary shape referred to a system of curvilinear (not orthogonal in the general case) coordinates (x^i, i = 1, 2, 3) characterized by a metric covariant tensor $g_{ik}(x^i)$. The resolvents are obtained and used to study the stress-deformation state of plates and shells without the use of the Kirchoff-Love hypothesis. The derivation is presented in tensor form for linearly elastic working of the material. 7 ref. Authors' abstract.

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USSR

VAYNBERG, D. V., SAKHAROV, A. S., SINYAVSKIY, A. L. UDC 539.3

"Investigation of Flexible Plates and Shells"

V sb. Raschet prostranstv. konstruktsii. Vyp. 14 (Calculation of Three-Dimensional Structures. No. 14 -- Collection of Works), Moscow, Stroyizdat, 1971, pp 35-51 (from RZh-Mekhanika, No 9, Sep 71, Abstract No 9V102)

Translation: The deformation of flexible shells and plates with eccentric ribs is discussed. Restrictions are not imposed on the shape of the middle surface of the shell, the nature of the load distribution and support conditions. The discrete positioning of the ribs is taken into account. The problem is solved by numerical methods. A variational method is proposed for constructing the difference equations which consists of minimizing the elastic potential of the deformed system represented in discrete form. Iteration algorithms are developed for solving the linear and nonlinear equations of higher order. A set of programs was developed for fully automating the calculating process including the computer formation of grid equations. Several numerical examples are included for calculating ribbed shells and plates for various parameters, boundary conditions, and load characteristics. Authors abstract.

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USSR

UDC 537.311.33

DASHEVSKIY, M. YA., and SAKHAROV, B. A., State Scientific Research Institute of the Rare Metal Industry, Moscow Institute of Steel and Alloys

"Some Problems in Studying the Growth Processes of Ribbonlike Dendrites of Semiconductor Substances"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 9, Sep 70, pp 1557-1560

Abstract: The work of Soviet researchers in the field of dendritic crystallization of semiconductors was to a large extent summed up at the All-Union Conference on "Methods for the Preparation of Dendritic Ribbons and Their Properties and Prospects for Their Use in Instruments" (Moscow, 1966), and in the field of the growth of profiled semiconductor single crystals in Trudy Vsesoyuznogo Soveshchaniya po Poluchen'yu Monokristallov po Metodu A. V. Stepanova (Proceedings of the All-Union Conference on the Preparation of Single Crystals by the Method of A. V. Stepanov), published in 1968. The present article,

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DASHEVSKIY, M. YA., and SAKHAROV, B. A., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 9, Sep 70, pp 1557-1560

which was reported on in part at the former conference, formulates a number of problems connected with the study of dendritic crystallization processes of semiconductor substances and compounds with the structure of diamond and sphalerite, as well as indicating ways of solving some problems. Several works have studied the growth mechanism of dendrites, resulting in the formulation of the concepts of re-entrant and salient angles. However, the following questions remain unresolved: the structure of the active center of growth and the role of twinning planes in the formation of the active center; the force field created by the active center of growth and the structure of the melt near the active center of growth. One possible avenue for further experimental study of the structure of the active center is to study the initial stages of crystallization processes from the vapor phase of twin structures in given crystallographic directions under conditions of varying supersaturation. Numerous investigations

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DASHEVSKIY, M. YA., and SAKHAROV, B. A., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 9, Sep 70, pp 1557-1560

have studied the distribution of impurities between melt and dendrite. However, there is no quantitative description of the distribution processes. This requires a detailed study of the distribution of impurities in each of various regions (the region of the active center of growth, the "trunk" region, the H-branch region, the interbranch region) in relation to growth conditions. Elucidating the character of the distribution of point defects in the volume of a dendrite will make it possible to shed additional light on the mechanism of its growth.

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472 025 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CHEMICAL HETEROGENEITY OF EPITAXIAL LAYERS OF GALLIUM PHOSPHIDE GALLIUM ARSENIDE SOLID SOLUTIONS -U-

AUTHOR-(05)-GIMELFARB, F.A., KISTOVA, YE.M., MASLOV, V.N., SAKHAROV, B.A., FISTUL, V.I.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER. 1970, 6(3), 461-7

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--GALLIUM, PHOSPHIDE, ARSENIDE, SOLID SOLUTION, EPITAXIAL GROWTH, SPECTROSCOPY, SINGLE CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

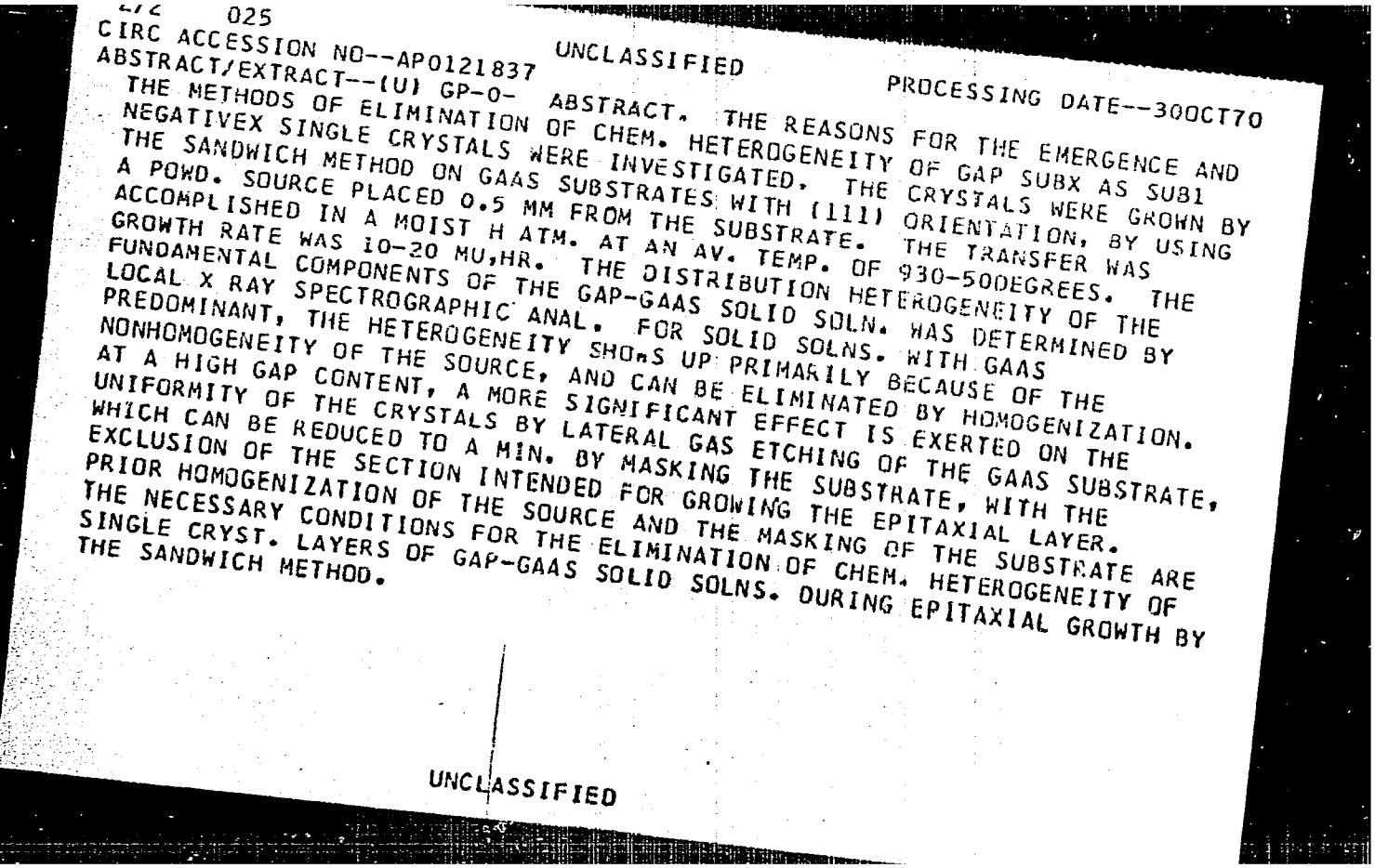
DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/1344

STEP NO--UR/0363/70/006/003/0461/0467

CIRC ACCESSION NO--AP0121837

UNCLASSIFIED



2/2 025 UNCLASSIFIED
CIRC ACCESSION NO--AP0121837 PROCESSING DATE--30OCT70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE REASONS FOR THE EMERGENCE AND THE METHODS OF ELIMINATION OF CHEM. HETEROGENEITY OF GAP SUBX AS SUB1 NEGATIVEX SINGLE CRYSTALS WERE INVESTIGATED. THE CRYSTALS WERE GROWN BY THE SANDWICH METHOD ON GAAS SUBSTRATES WITH (111) ORIENTATION, BY USING A POWD. SOURCE PLACED 0.5 MM FROM THE SUBSTRATE. THE TRANSFER WAS ACCOMPLISHED IN A MOIST H ATM. AT AN AV. TEMP. OF 930-50DEGREES. THE GROWTH RATE WAS 10-20 MU,HR. THE DISTRIBUTION HETEROGENEITY OF THE FUNDAMENTAL COMPONENTS OF THE GAP-GAAS SOLID SOLN. WAS DETERMINED BY LOCAL X RAY SPECTROGRAPHIC ANAL. FOR SOLID SOLNS. WITH GAAS PREDOMINANT, THE HETEROGENEITY SHOWS UP PRIMARILY BECAUSE OF THE NONHOMOGENEITY OF THE SOURCE, AND CAN BE ELIMINATED BY HOMOGENIZATION. AT A HIGH GAP CONTENT, A MORE SIGNIFICANT EFFECT IS EXERTED ON THE UNIFORMITY OF THE CRYSTALS BY LATERAL GAS ETCHING OF THE GAAS SUBSTRATE, WHICH CAN BE REDUCED TO A MIN. BY MASKING THE SUBSTRATE, WITH THE EXCLUSION OF THE SECTION INTENDED FOR GROWING THE EPITAXIAL LAYER. PRIOR HOMOGENIZATION OF THE SOURCE AND THE MASKING OF THE SUBSTRATE ARE THE NECESSARY CONDITIONS FOR THE ELIMINATION OF CHEM. HETEROGENEITY OF SINGLE CRYST. LAYERS OF GAP-GAAS SOLID SOLNS. DURING EPITAXIAL GROWTH BY THE SANDWICH METHOD.

UNCLASSIFIED

USSR

UDC 621.315.592

GULYAYEVA, A. S., KRASYUK, V. A., MASLOV, V. N., and SAKHAROV, B. A., Corresponding Member of the Academy of Sciences USSR, State Scientific Research and Planning Institute of the Rare Metals Industry, Moscow

"Change of GaAs Single Crystal Photoluminescence in Regions Damaged by a Laser Beam"

Moscow, Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972, pp 815-817

Abstract: The authors studied changes in the photoluminescence of GaAs single crystals with p- and n-type conduction and a carrier concentration of $1 \cdot 10^{17}$ -- $3 \cdot 10^{17}$ cm^{-3} in the regions damaged by a laser beam. The p-type Zn-doped samples were obtained by the Czochralski method; the n-type Te-doped samples, by the Czochralski and Bridgman methods. The samples were exposed to single light pulses of 500-microsecond duration from a laser with the active element of glass with neodymium, $\lambda = 1.06\ \mu$. The absorption coefficient of the samples at this wavelength was $\alpha = 1\text{-}3\ cm^{-1}$. At a mean luminous flux density of $\sim 5 \cdot 10^5$ w/sq cm the damage appeared on the sample face opposite

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GULYAYEVA, A. S., et al., Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972, pp 815-817

the laser beam, probably as a result of local sample temperature elevation during the action of the laser pulse. The light source for studying the photoluminescence spectrum was a (He-Ne) laser with a wavelength of 6328 A°. For each sample the emission spectrum was recorded in several places for both the damaged and undamaged areas of the sample.

The photoluminescence spectra for all samples at 293° K had only one "edge" emission line with a peak of 1.43 ev, with the emission intensity of the damaged regions being only a third to a fourth of the emission intensity for the undamaged regions. The photoluminescence spectra of the p-type samples at 77° K likewise had only one "edge" emission peak with an energy of 1.48 ev, with the intensity in the damaged regions about half that of the undamaged areas. The photoluminescence spectra of the n-type samples had peaks with energies of 1.51 and 1.23 ev respectively, with the "edge" luminescence intensity of the damaged regions decreasing about 50 to 60% and the intensity of the 1.23-ev peak increasing 1.5-2 times.

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USSR

GULYAYEVA, A. S., et al., Doklady Akademii Nauk SSSR, Vol 205, No 4, 1972, pp 815-817

To see if in all GaAs samples containing Te there is an increase in the intensity of the line with the 1.23-ev peak in laser-damaged areas, n-type samples underwent heat treatment at 800° C for six hours so as to introduce copper into them. The line with the 1.23-ev peak was found to disappear for samples containing copper.

The authors thank T. G. YUGOVA for carrying out the heat treatment of the samples.

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SAKHAROV, B.A.

JPRS 59208
6-73

V-6. TRANSPORT OF THE GaAs-GaP SOLID SOLUTION IN THE GAS TRANSPORT REACTION WITH WATER VAPOR

[Article by Yu. M. Kletova, V. M. Manlov, T. V. Nechayev, B. A. Sakharov, Moscow; Kristallov i Fiziki, Russian, 12-17 June, 1972, p 59

In this paper an experimental study was made of the variation of the composition of the GaAs-GaP solid solution during its transport by water vapor in the sandwich process. The transport is realized from a source with a temperature of 930°C on graphite substrate with a temperature of 920°C. It was established that with a GaP concentration to 50 percent the deposit is enriched in phosphorus; at higher concentrations it is enriched with arsenic. In order to explain the experimental data, the theory of regular solutions was used. The value of the energy of interaction of the molecules in the isovalent solution was obtained. The effect of the nonideal nature of the solution on the variation and composition of the deposit by comparison with the composition of the source during the gas transport reaction is discussed.

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6-73

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VI-7. RADIAL DISTRIBUTION OF THE ADMIXTURE IN SILICON CRYSTALS GROWN IN AN ASYMMETRIC THERMAL FIELD

[Article by M. I. Osovskiy, K. N. Neymark, E. S. Fal'kevich, B. A. Sakharov, Zaporozh'ye; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 73]

An experimental study was made of the radial distribution of phosphorus admixture in silicon single crystals grown in an asymmetric thermal field. It was established that with an increase in the asymmetry of the thermal field, the radial homogeniety of the phosphorus distribution becomes sharply worse.

An analysis was performed of the observed phenomenon, and it was established that it is connected with the "melting effect" of the crystal. The function was obtained which relates the rate of rotation and growth of the crystal to the magnitude of the asymmetry of the thermal field. The selection of the growth parameters of the crystal in accordance with the obtained function permits exclusion of the exhibition of the effect of melting and significant improvement of the radial distribution of the admixture.

SPIS 69208
6-73

SESSION III

III-1. OBTAINING AND STUDYING CERTAIN PROPERTIES OF SOLID SOLUTIONS OF THE INDIUM ARSENIDE AND GALLIUM ARSENIDE SYSTEM

[Article by B. A. Sakharov, M. D. Kilyatovskaya, N. Ye. Dmitriyeva, N. F. Chureleva, Ye. V. Kiseleva, Ye. P. Rashevskaya, Moscow; Novosibirsk, III Simpozium po Protsessam Rosta i Sinteza Poluprovodnikovykh Kristallov i Plenok, Russian, 12-17 June, 1972, p 23]

The solid solutions of the indium arsenide and gallium arsenide system are interesting and prospective semiconducting materials the basic characteristic parameters of which have intermediate values between the parameters of such important compounds as gallium arsenide and indium arsenide.

In the given paper a study was made of the problem of obtaining solid solutions of the indium arsenide and gallium arsenide system by different methods: zone growth, directional crystallization, pulling from a melt by the Czochralski method, crystallization from the gas phase. Comparative characteristics of the materials obtained by these methods are presented.

A study was made of some optical and electrophysical properties of solid solutions of the indium arsenide and gallium arsenide system in the entire range of compositions. The spectra of the optical transmission in the wave length range of 0.9-25 microns were measured for temperatures of 77 and 300°K. The curves were obtained for the spectral dependence of the absorption coefficient. A study was made of the dependence of the concentration of the charge carriers, mobility and width of the forbidden zone on the composition of the solid solution.

SAKHAROV, B.A.

USSR

UDC: 539.4:629.7.02

OBOLENSKIY, Ye. P., SAKHAROV, B. I.

"Investigation of Panels of Aviation Structural Elements Under Repeated Static Loading"

Tr. Mosk. aviats. in-ta (Works of the Moscow Aviation Institute), 1971, vyp. 180, pp 173-193 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V839)

Translation: A procedure is presented for mathematical processing of the results of tests of panels for repeated static loading using the methods of probability theory, mathematical statistics, correlation and regression analysis. The results of tests of various types of panels are statistically processed by the proposed method to reveal the effect which technological and structural factors have on the fatigue strength of glider panels. Correlation equations of durability are calculated for these panels with corresponding statistical characteristics. A comparative analysis is given of the fatigue strength of some panels. Bibliography of 19 titles. Authors' abstract.

1/1

USSR

UDC 539.4:629.7.0.2

SAKHAROV, B. I.

"Calculation of Thin Spherical Shells Provided With Stiffeners and Subject to Internal or External Uniform Pressure"

Moscow, Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 151-172

Abstract: Thin elastic shells in the shape of a spherical segment, fixed at the edge and provided with stiffener ribs along the meridians and parallels, are investigated.

The method of total potential energy is used. If the tangential deflections are neglected, the total potential energy is expressed by equations (11), which takes into account the stiffeners.

Assuming that the normal deflections are expressed by the first two terms of Fourier series as given by equation (13), the

USSR

SAKHAROV, B. I., Prochnost' i Ustoychivost' Tonkostennykh Aviatsionnykh Konstruktsiy, 1971, pp 151-172

total potential energy can be expressed by formula (20). From the latter formula the coefficients for the two terms of equation (13) are determined.

The membrane stresses and the bending stresses are determined using the deflections given by equation (13).

Numerical examples are given. It is shown that to obtain the same buckling strength the shell without stiffeners has to be three times thicker than the shell provided with stiffeners.

2/2

SAKHAROV L. N.

AA0052681

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 270

244051 VALVE BLOCK where in the housing 1 are mounted two three-way valves 2, each containing controlling piston 3, neutral slide plate 4 and lower plate 5. When valve 2 is in top disconnected postion, the slide plate 4 separates volume a and . Through channel B compressed air is supplied. With open valves (bottom position) compressed air is supplied to volume 2 which is connected by channel 7 to volume a. Channel delivers compressed air to controlled installations. To activate the valve, the compressed air is directed by e.g. the solenoid valve 6 to volume e. Because the area of controlling piston 3 is larger than the area of lower plate 5, the three-way valve moves into connected, lower position. In de-activating by de-pressuring volume e, the compressed air from the valve is drained to the atmosphere through channel . In the

1/3

18

1982145.3

AA0052681

Morozov, V.F.; Karzhan, V.V.; Sakharov, L.N.; Voronezhskiy Zavod Kuznechno-Pressovogo Oborudovaniya im. M.I. Kalinina

case when only one valve is de-activated, or only one is activated, the second valve cannot be accidentally moved even if compressed air enters volume e, because the sum of active areas of slide plate 4 and lower plate 5 is larger than the area of controlling plate 3. Activation of both valves is possible only with simultaneous supply of compressdd air to both volumes e. 18.5.67, as 1156367/25-8. V.F.MOROZOV, V.V KARZHAN, and L.N.SAKHAROV M.I.Kalinin Voronezh Factory of Forging and Pressing Equipment. (6.10.69.) Bul.17/14.5.69. Class 47h. Int.Cl. F16h.

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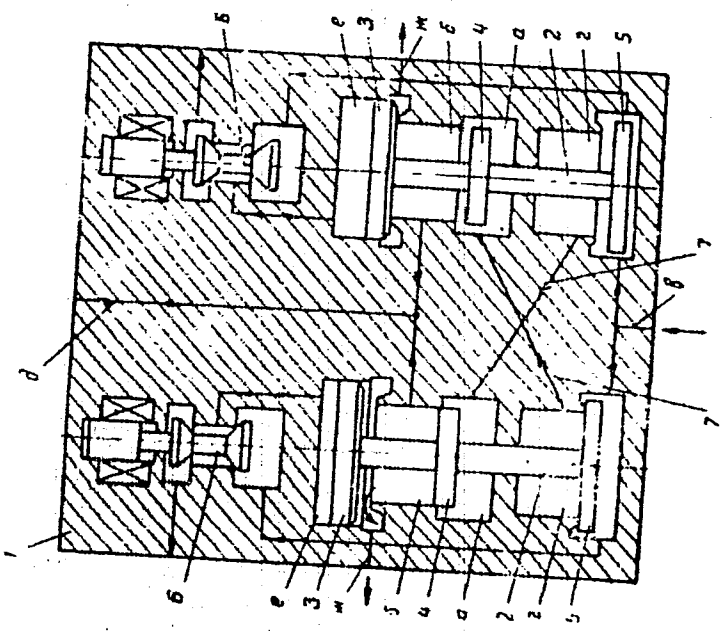
19821454

AA0052681



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19821455

USSR

UDC 541.128.12.13

BAKHMAN, N. N., LOBANOV, I. N., MARGOLIS, L. Ya., NIKIFOROV, V. S., and SAKHAROV, M. M., Institute of Chemical Physics, Acad. Sc., USSR, Moscow

"Heterogeneous-Homogeneous Catalysis in the Combustion of Mixture Systems"

Moscow, Doklady Akademii Nauk SSSR, Vol 202, No 5, Feb 72, pp 1107-1110

Abstract: Combustion rate of condensed mixture systems may be increased 2-2.5 fold by addition of small amounts of compounds of iron, chromium, copper, silicon, and other elements. Many of these compounds are known catalysts for deep oxidation of hydrocarbons and ammonia. It has been proposed that the entire mixture or at least considerable portion of it reacts at the surface of catalyst particles. To check this proposition, a theoretical calculation was derived for the rate of the catalyzed reaction. From theoretical considerations the conclusion was reached that a heterogeneous-homogeneous catalytic process takes place. Active products are formed on the surface of the catalyst particles, the active products even at low concentrations increase considerably the homogeneous reaction rate. Support for the heterogeneous mechanism of catalysis during combustion is found in the relationship between the combustion rate and the catalyst

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USSR

BAKHMAN, N. N., Doklady Akademii Nauk SSSR, Vol 202, No 5, Feb 72, pp 1107-1110

concentration. The effectiveness of the catalyst increases only at low concentrations. Further support for this mechanism rests on the fact that with small additions of the catalyst either an acceleration or inhibition of the combustion may occur -- a phenomenon impossible to explain by the reaction of the mixture on the surface of catalyst particles.

2/2

USSR

SAKHAROV, N. S.

UDC: 621.374.4

"A Ferrotransistor Counter as a Frequency Divider With a Division Factor Variable From 1 to 5"

Tr. metrol. in-tov SSSR (Works of Metrology Institutes of the USSR), 1972, vyp. 116(176), pp 102-106 (from RZh-Metrologiya i Izmeritel'naya Tekhnika, No 6, Jun 72, Abstract No 6.32.500)

Translation: The author considers an economic pulse recurrence frequency divider with variable division factor based on ferrotransistor 4-place binary counters with variable periodic overflow setting. An analysis is given of the operation of the divider as a whole and of the binary ferrotransistor cell which is a component part, with justification of the components used in the circuit. The divider contains a small number of elements, is reliable in operation, and is convenient for use on frequencies below 100 kHz. The required fixed division factor is set by resoldering jumpers which comprise the periodic reset line. The division factor may be controlled by using a special encoder. Three illustrations, bibliography of five titles. Resumé.

1/1

USSR

UDC 681.335.813

SAKHAROV, O. N., MASLOV, A. A., KALMYKOV, I. V.

"A Device for Generating Functions of Two Variables"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 12, 1970, Author's Certificate No 267 196, filed 3 Jan 69, p 121

Abstract: This Author's Certificate introduces a device for generating functions of two variables. The unit contains linear elements, a summing amplifier, and diode functional converters with reference voltages which vary according to predetermined laws. As a distinguishing feature of the patent, precision is improved and the device is simplified by connecting a source of voltage proportional to the first variable to the main inputs of those functional converters in which the source of voltage proportional to the second variable is connected to the reference voltage inputs through linear elements. A source of voltage proportional to the second variable is also connected to the main inputs of the other functional converters, whose reference voltage inputs are connected through linear elements to the signal source which is proportional to the first variable. The outputs of all functional converters are connected to the input of the summing amplifier. 1/1

1/2 043 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--NARROW LINE RUBY LASER -U-

AUTHOR-(05)-VINOGIN, YU.P., GNATYUK, L.N., NIKASHIN, V.A., SAKHAROV, V.K., TARASOV, V.K.

COUNTRY OF INFO--USSR

SOURCE--OPT. SPEKTROSK. 1970, 28(1), 168-70

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RUBY LASER, MULTISTAGE LASER, LASER EMISSION COHERENCE, LASER MODULATION, LASER PULSE, LASER POWER OUTPUT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1984/0368 STEP NO--UR/0051/70/028/001/0168/0170

CIRC ACCESSION NO--AP0055153

UNCLASSIFIED

2/2 043 UNCLASSIFIED PROCESSING DATE--09OCT70

CIRC ACCESSION NO--AP0055153

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO LASERS WERE USED IN THE SYSTEM OPERATING STABLY IN A SINGLE FREQUENCY REGION AND THE OTHER AN OUTPUT LASER WITH A PHOTOTROPIC SHUTTER, THE INITIAL ILLUMINATION OF WHICH IS PRODUCED BY THE RADIATION OF THE 1ST LASER. THE ACTIVE ELEMENT OF THE 1ST LASER WAS A HIGHLY UNIFORM RUBY CRYSTAL WITH SAPPHIRE CAPS 12 CM LONG AND 10 CM DIAM. THE QUALITY MODULATOR WAS A SOLN. OF PHTHALOCYANINE IN PHNO SUB2. SINGLE FREQUENCY OPERATION WAS MAINTAINED BY INCREASING THE PUMPING ENERGY 10PERCENT ABOVE THAT OF THE THRESHOLD. THE CRYSTAL OF THE 2ND LASER WAS 24 CM LONG AND 16 MM DIAM. THE SYSTEM USED CAN PRODUCE A POWERFUL SINGLE PULSERADIATION OF VERY NARROW SPECTRAL COMPN.

UNCLASSIFIED

1/2 044 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--AN AMPLIFIER OF SINGLE FREQUENCY LASER EMISSION -U-

AUTHOR-(04)-NIKASHIN, V.A., RUKMAN, G.I., SAKHAROV, V.K., TARASOV, V.K.

COUNTRY OF INFO--USSR

SOURCE--PRIBORY I TEKHNIKA EKSPERIMENTA, JAN.-FEB. 1970, P. 194, 195

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RUBY LASER, OPTIC AMPLIFICATION, CRYSTAL OPTIC PROPERTY, LASER EMISSION COHERENCE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1988/1455 STEP NO--UR/0120/70/000/000/0194/0195

CIRC ACCESSION NO--AP0106211

UNCLASSIFIED

2/2 044 UNCLASSIFIED

CIRC ACCESSION NO--AP0106211 PROCESSING DATE--23OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DESCRIPTION OF AN AMPLIFIER OF SINGLE FREQUENCY RUBY LASER EMISSION WITH A LARGE AMPLIFICATION FACTOR ACHIEVED BY TRIPLE PASSAGE OF THE BEAM TO BE AMPLIFIED THROUGH THE AMPLIFIER CRYSTAL. A MAXIMUM AMPLIFICATION FACTOR OF 24 CAN BE ATTAINED BY THIS AMPLIFIER. A BRIEF DESCRIPTION IS GIVEN OF THE SPATIAL STRUCTURE AND THE DEGREE OF COHERENCE OF THE AMPLIFIED RADIATION.

FACILITY: VSESOIUZNYI NAUCHNOLSSLEDOVATEL'SKII INSTITUT OPTIKO-FIZICHESKIKH IZMERENII, MOSCOW,, USSR.

UNCLASSIFIED

1/2 038 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--A RUBY LASER WITH A NARROW EMISSION LINE -U-

AUTHOR-(05)-VINOGIN, YU.P., GNATYUK, L.N., NIKASHIN, V.A., SAKHAROV, V.K., TARASOV, V.K.

COUNTRY OF INFO--USSR

SOURCE--OPTIKA I SPEKTROSKOPIIA, VOL. 28, JAN. 1970, P. 168-170

DATE PUBLISHED----JAN70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--RUBY LASER, LASER RADIATION, LASER EMISSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1979/1676 STEP NO--UR/0051/70/028/000/0168/0170

CIRC ACCESSION NO--AP0047934

UNCLASSIFIED

2/2 038 UNCLASSIFIED PROCESSING DATE--18SEP70

CIRC ACCESSION NO--AP0047994

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. STUDY OF THE POSSIBILITY OF CREATING A SOURCE OF FAIRLY POWERFUL MONOPULSE RADIATION OF NARROW SPECTRAL COMPOSITION. TWO GENERATORS WERE USED IN THIS STUDY: THE FIRST STABLY OPERATING IN A SINGLE FREQUENCY REGIME (ONE TRANSVERSE AND ONE LONGITUDINAL MODE), WHILE THE SECOND, THE OUTPUT GENERATOR, IS A LASER WITH A PHOTOTROPIC Q SWITCH, THE INITIAL BLEACHING OF WHICH OCCURS AS A RESULT OF THE RADIATION OF THE FIRST LASER.

UNCLASSIFIED

1/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--CALCULATION OF RETENTION VALUES IN GAS CHROMATOGRAPHY. III. CHLORINATED HYDROCARBONS -U-

AUTHOR-(03)-SAKHAROV, V.M., VOSKOV, V.S., DZHIOYEVA, Z.K.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(1), 183-6

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, METHODS AND EQUIPMENT

TOPIC TAGS--GAS CHROMATOGRAPHY, CHLORINATED ORGANIC COMPOUND, CHROMATOGRAPHIC ANALYSIS, ISOMER, STEREOCHEMISTRY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/2145 STEP NO--UR/0076/70/044/001/0183/0186

CIRC ACCESSION NO--AP0125728

UNCLASSIFIED

2/2 011 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0125728

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. RETENTION VALUES (R SUBV) AND THE B.P. OF ISOMERIC CHLOROORG. COMPDS. DEPEND ON THE ENERGIES GIVEN BY THE STERIC EFFECTS IN THE MOLS. OF THESE COMPDS. THE INTERACTION ENERGIES OF NONBOUND ATOMS CAN BE ESTD. IF THE NO. OF INTERACTING PAIRS OF GEMINAL H AND CL ATOMS (H-H) SUBI AND (C-CL) SUBI IS KNOWN. TABLES GIVE THE NO. (H-H) SUBI, (H-CL) SUBI, R SUBV, AND B.P. FOR 26 MONO, DI, TRI, AND TETRACHLORO SUBSTITUTED SATD. AND UNSATD. HYDROCARBONS.

UNCLASSIFIED

1/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--PASSAGE OF REACTOR NEUTRONS AT OBLIQUE ANGLES THROUGH SHIELDS -U-

AUTHOR-(04)-KUZNETSOV, V.G., SAKOVICH, V.A., SAKHAROV, V.M., STOLPOVA, I.A.

COUNTRY OF INFO--USSR

SOURCE--VOP. DOZIM. ZASHCH. IZLUCH. 1969, NO. 9, 22-9

DATE PUBLISHED-------70

SUBJECT AREAS--NUCLEAR SCIENCE AND TECHNOLOGY

TOPIC TAGS--NEUTRON SHIELDING, REACTOR SHIELDING, ANGULAR DISTRIBUTION, NEUTRON SPECTRUM, IRON, NEUTRON SCATTERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3007/1006 STEP NO--UR/2892/70/000/009/0022/0029

CIRC ACCESSION NO--AP0136433

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0136433

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. BY USING THE METHOD OF SPHERICAL HARMONICS, BOTH ENERGY SPATIAL AND ANGULAR DISTRIBUTIONS ARE STUDIED OF REACTOR N INCIDENT AT AN OBLIQUE ANGLE ON A PLANE PARALLEL FE SHIELD. THE ANGULAR DISTRIBUTION OF N VARIES WITH INCREASING WIDTH OF SHIELD AZIMUTHALLY SYM. WITH RESPECT TO NORMAL OF THE SHIELD. THE FORM OF THE DISTRIBUTION IS THEN IDENTICAL WITH THAT GENERATED AT NORMAL PASSAGE OF N BEAM THROUGH THE SHIELD.

UNCLASSIFIED

USSR UDC: 539.4:624.012

SAKHAROV, V. N., YEFREMOV, A. I.

"Some Problems of Measuring Deformation on the Surface of Reinforced Concrete Structures Using Optically Active Coatings and Photoelastic Pickups Under Laboratory and Full-Scale Conditions"

V sb. Modelir. stroit. konstruktsiy (Modeling of Structural Elements--collection of works), Moscow, Stroyizdat, 1971, pp 180-185 (from RZh--Mekhanika, No 7, Jul 71, Abstract No 7V964)

Translation: Data are presented on development of a procedure for making and applying coatings of optically sensitive materials enabling testing of concrete structures both before fracture and under conditions of crack formation. Some results of the research are presented, e. g.: the study of distribution of deformation between the cement rock and the filler in ordinary concrete, rock-concrete and keramzit-concrete; studies of the deformed state of reinforced concrete bendable elements in the presence of crack formations. In addition, the article contains a report on elaboration of basic procedural problems related to the use of optically active coatings for studying dynamically loaded structures. Bibliography of 15 titles. Authors' abstract.

1/1

USSR

UDC 591.1.15

SAKHAROV, V. N., VORONKOVA, L. N., and CHENTSOV, Yu. S.

"Ultrastructure of Intranuclear Inclusions Formed During the Division of Cells Irradiated with an Ultraviolet Microbeam"

Nauch. dokl. vyssh. shkoly. Biol. n. (Scientific Reports of Higher Schools. Biological Sciences), 1972, No 5, pp 56-59 (from RZh-Biologicheskaya Khimiya, No 17, 10 Sep 70, Abstract No 17 F1481)

Translation: The division of cells with a prophase nucleolus locally injured by an UV microbeam results in the formation of daughter cells whose nuclei contain numerous inclusions, prenucleoli, in addition to normal nucleoli. The former contain RNA but, unlike normal nucleoli, they are lacking in granules and consist mainly of delicate fibrils (40 to 80 Å). The appearance of prenucleoli is thought to be due either to specific disruption of the ribosomal RNA synthesis in the daughter cells or to radiation-induced injury to the nucleolar substance.

1/1

USSR

UDC: 536.5:621.383

Anufriev, A. A., Komissarova, L. M., Sakharov, V. P.

"Photoelectric Sensor for Recording of Low-power Infrared Radiation"

Moscow, Pribory i Sistemy Upravleniya, No 5, 1972, pp 48-49.

Abstract: The sensor described in this article was designed for recording weak light signals radiated by heated substances in an adiabatic compression chamber. The sensor consists of an optical aperture, light guide, interference light filter, modulator disc, photoresistor and standard signal source. The device can record signals taken from the photoresistor in the range of 2-20 μv with a time constant of about 10^{-3} sec, with linear accelerations up to 150 g and vibrations at 100-2000 Hz, and therefore can be used for a number of problems where the properties of a gas and control of a process in the gas involve the radiaiton of light energy.

1/1

USSR

UDC: 681.327

KITOVICH, V. V., STRAKHOV, V. G., BORODKIN, V. M., VOSTRIKOVA, Z. P., SAKHAROV, V. T.

"A Memory Device Using Magnetic Thin Films"

Moscow, Magnit. elementy avtomatiki i vychisl. tekhn. XIV Vses. soveshch., 1972. Ref. dokl. (Magnetic Elements in Automation and Computer Technology. Fourteenth All-Union Conference, 1972. Abstracts of Papers), 1972, pp 114-117 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 1, Jan 73, abstract No 1B410 by V. R.)

Translation: The paper describes an immediate-access memory unit using thin films with a capacity of 1024 26-digit numbers with an access time of 0.7 μs and a sampling time of 0.2 μs. The device contains: a magnetic film module, an address decoding module, a readout-record amplifier module, and a localized control module. The memory module for data storage uses four magnetic film elements per symbol.

The magnetic film module consists of 16 aluminum matrices, each of which contains 140 x 66 Permalloy "spots" measuring 0.3 x 0.5 mm. Provision is made in the module for redundant information capacity: there are 96

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USSR

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KITOVICH, V. V. et al., Magnit. elementy avtomatiki i vychisl. tekhn. XIV soveshch., 1972. Ref. dokl., 1972, pp 114-117

reserve numbers and seven reserve digital places. The electrical parameters of the memory unit: readout current 250 ma, discharge current 60 ma, output signal 0.5 mv or more with a duration of 50 ns. Structurally the memory unit is made in the form of a block measuring 390 x 290 x 194 mm with a weight of 12 kg. Power consumption is 9 w. Bibliography of one title.

2/2

USSR UDC 621.039.573

SAKHAROV, YE. S., CHUCHALIN, I. P., SKORIKOV, A. G., AKIMOVA, R. I., and KARNAUKHOV, V. V.

"Radiation Loop of the IRT Reactor at Tomsk Polytechnical Institute"

Moscow, Atomnaya Energiya, Vol 29, No 1, Jul 70, pp 43-45

Abstract: A description is given of the characteristic features and technical specifications of the radiation loop of the IRT reactor at Tomsk Polytechnical Institute and the results of efforts made to optimize its operating conditions as a function of the position of the activity generator layers with respect to each other and the generator as a whole with respect to the core. The effect of the loop on the criticality of the reacotr is also estimated.

It has been established that increasing the gamma-carrier flow rate above 4 cm^3/sec does not increase the power of the irradiator since the parameters τ, ν, and ϵ decrease sharply. Graphs are presented showing the results of experiments in optimizing the operating conditions of the loop. From the figure it is obvious that there is an optimium distance between the

USSR

SAKHAROV, YE. S., et al., Atomnaya Energiya, Vol 29, No 1, Jul 70, pp 43-45

activity generator layers. However, the dependence of the irradiator power on the position of the activity generator with respect to the core has a monotonic nature. A difference between single-layer and multiple-layer generators is noted. In the position of the single-layer activity generator with respect to the core there is a clear optimum coinciding with the bump zone of the thermal neutron flux in the reflector. For the multiple layer generator the power of the irradiator increases montonically on approaching the core. The nature of the increase in the power curve coincides with the spatial distribution of the total neutron flux in the reactor. This means that not only thermal neutrons, but also more rigid neutrons which decellerate in the interstitial layer of water between the γ-carrier layers, participate in activation. Thus, more complete utilization of neutrons leaking out of the core is achieved in the multiple layer generators. In addition, more complete participation of the γ-carrier nuclei in absorption of neutrons is also achieved as a result of a partial decrease in self-shielding as a result of thinning-down of the layers and decreasing the depression of

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USSR

SAKHAROV, YE. S., et al., Atomnaya Energiya, Vol 29, No 1, Jul 70, pp 43-45

the neutron flux in adjacent layers of moderating material.

The participation of neutrons of all energies in activation was confirmed by an experiment in which the adjacent row of fuel assemblies was replaced by graphite and the activity generator was shifted away from the core. As a result, the activity of the loop dropped by 10 percent. The graph of the experimental results also shows that the decrease in the reactivity margin of the reactor even with the generator at the closest point to the core does not exceed 0.25 percent, and in the presence of graphite fuel elements it is still less (0.17 percent). These data do not differ in practice from those obtained on other devices. Application of a movable irradiator permitted significant expansion of the experimental possibilities of the loop since it permitted entrance into the operating chamber almost immediately after shutting down the loop even if the alloy residues had not been blown out. In addition, the presence of the irradiator permitted not only feeding samples to the source but also the source to the samples.

USSR

SAKHAROV, YE. S., et al., Atomnaya Energiya, Vol 29, No 1, Jul 70, pp 43-45

It is concluded that the experience in operating the radiation loop cinfirms the reliability and simplicity of servicing such devices. The capacity of the loop should be increased in the future by increasing the number of layers in the generator and also by using a more efficient γ-carrier -- pure indium.

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USSR

UDC: 621.396.69:621.319.4

CHERNOBROVKIN, D. I., SAKHAROV, Yu. G., LOTOV, V. I.

"Investigation of the Characteristics of Aging of Thin-Film Capacitors"

Elektron. tekhnika. Nauchno-tekhn. sb. Radiodetali (Electronic Technology. Scientific and Technical Collection, Radio Components), 1970, Vyp. 1 (18), pp 31-34 (from RZh-Radiotekhnika, No 12, Dec 70, Abstract No 12V354)

Translation: The authors give the results of an investigation of the process of aging of thin-film capacitors based on germanium monoxide with various conditions of the ambient medium. It is shown that careful development of the atomizing conditions is an important factor in improving the reliability of the capacitors. Bibliography of 2 titles. Ye. M.

1/1

USSR

UDC 546.289'21:539.238

SAKHAROV, YU. G., KOROSTELEV, V. F., KUZNETSOV, L. I., CHERNOBROVKIN, D. I., and PUKHA, P. N., Omsk Polytecnnical Institute

"Electron Microscope Study of the Structure of GeO Films"

Moscow, Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 10, Oct 70, pp 1821-1823

Abstract: The article considers the effect of specific process regimes on the existence of the amorphous and crystalline states of GeO films, as well as structural changes in GeO as a result of temperature and elevated humidity. An EM-7 electron microscope was used to study the structure of the GeO films. The films were deposited on substrates of sital ST 50-1 at 100 and 200° C. Deposition rate was 5-50 Å/sec. Crystalline inclusions of GeO are observed in the initial deposition stages. Films deposited on different substrates under the same conditions can have different inclusion sizes and shapes, while films deposited on the same substrate under different conditions dis-

USSR

SAKHAROV, YU. G., et al., Izvestiya Akademii Nauk SSSR -- Neorganicheskiye Materialy, Vol 6, No 10, Oct 70, pp 1821-1823

play the same structure. Two forms of crystalline formations are found, viz. flat tablets and needles. An increase in film thickness intensifies the effect of substrate temperature and deposition rate. Films 1-2 microns thick display the crystal phase at deposition rates of ~ 5 Å/sec, but have an amorphous structure at rates above 20 Å/sec. The size of the crystal formations increases at a substrate temperature of 200° C. Vacuum annealing at 450° C results in the transition of GeO from the amorphous to the crystal phase. The amorphous phase is stable below 350° C. GeO undergoes structural changes in a humid atmosphere.

2/2

USSR

UDC 621.319.4

SAKHAROV, Yu. G., CHERNOBROVKIN, D. I.

"A Dielectric"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 2, Jan 71, Author's Certificate No 290331, division H, filed 7 Oct 68, published 22 Dec 70, p 134

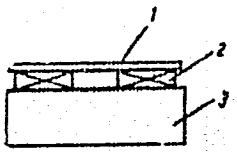
Translation: This Author's Certificate introduces a dielectric for thin-film fixed capacitors based on germanium monoxide. As a distinguishing feature of the patent, the specific capacitance of capacitors is increased by using 80-90 percent by weight of germanium monoxide and 20-10 percent by weight of plumbic oxide in the dielectric.

1/1

AA0044748 SAKHAROV Yu. I. UR 0482 4

Soviet Inventions Illustrated, Section II Electrical, Derwent, 2/70

243974 RECEIVER FOR ACOUSTIC SIGNALS. When an acoustic signal is applied to the diaphragm (1), eddy currents are generated in it. Their interaction with the magnet (3) magnetic field generates an e.m.f. in the coil (2). As the diaphragm mass is small, the receiver reproduces without distortion the shape of the applied signal within a wide frequency range.



20.10.67 as 1191772/18-10. BAKSHEEV.A.F.et alia. KUIBYSHEV PETROLEUM IND.RES.INST.(3.10.69) Bul 17/ 14.5.69. Class 42s. Int.Cl.B 06b.

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19771511

AA0044748

AUTHORS: Bashkeyev, A. F., Yerusalimskiy, I. N., Kalinkin, G. N., Kudashov, N. V., Laptev, V. V., Sakharov, Yu. I., Fedoseyev, A. N., Tsluv, L. Z.

Kuybyshevskiy Nauchno-Issledovatel'skiy Institut Neftyanoy Promyshlennosti

2/2

19771512

USSR

UDC 621.372.061

SAKHAROV, Yu. S.

"Application of Multifactor Planning of Experimentation for Selecting the Parameters of Radioelectronic Circuits"

Metody razrab. radioelektron. apparatury. No 1 (Methods of Developing Radioelectronic Equipment, No 1), Moscow, 1970, pp 149-153 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No A116)

Translation: This article contains an investigation of a procedure for multifactor planning of experimentation for selection of circuit parameters with respect to the reliability criterion. The procedure includes three basic stages, an approximate calculation with respect to known analytical relations between the primary and output parameters, construction of a mathematical model of the circuit by active experimentation in the vicinity of the determined base point and selection of primary parameters with respect to the obtained relations with given accuracy of the output parameters. The bibliography has three entries.

1/1

USSR

UDC 621.375.4

SAKHAROV, Yu. S., STAROVOYTOVA, Ye. M.

"Characteristic Features of Planning Extremal Experiments when Investigating Transistor Devices"

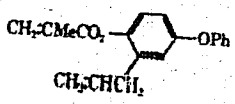
Metody razrab. radioelektron. apparatury. No 1 (Methods of Developing Radioelectronic Equipment. No 1), Moscow, 11970, pp 154-157 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8D52)

Translation: It is demonstrated that optimization of the functional assembly made of transistors cannot be achieved by selection of the transistor itself since in practice it is impossible to select the optimal type of transistor for the given assembly by the assigned technical specifications; therefore, optimization is carried out with respect to the parameters of the passive elements and the electrical conditions of the transistor. Methods of representation of the transistor are compared when searching for optimal solutions by an active experiment. The advantages of the generalized parameter method are presented.

1/1

Acc. Nr. AP0100237 Abstracting Service: CHEMICAL ABST. 6-70 Ref. Code UR0062

111844j New mono- and difunctional monomers for polymerization. Frunze, T. M.; Sakharova, A. A.; Lyubimskaya, R. A.; Ponkratova, T. M. (Inst. Elementoorg. Soedin., Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 182–3 (Russ). The condensation of 4-$PhOC_6H_4OH$ with CH_2:$CHCH_2Br$ in acetone contg. K_2CO_3 gave 80% 4-$PhOC_6H_3OCH_2CH$:CH_2 (I), b_1 163–5°. Claisen rearrangement of I at 220° gave 75% 4,3-$HO(CH_2$:$CHCH_2)C_6H_3OPh$ (II), b_6 185–8°. Esterification of II



(III)

with H_2C:$CMeCOCl$ in NaOH soln. gave 70% III, d^{20} 1.1069, n_D^{20} 1.5484.

CPJR

Y1

REEL/FRAME 19841627

7 C 6

Acc. Nr: AP0100259 Abstracting Service: CHEMICAL ABST. Ref. Code: 5170 4R0062

111139h Preparation of 9,9-bis(4-hydroxyphenyl)fluorene dimethacrylate—a new compound in a series of dimethacrylic esters of bisphenols. Frunze, T. M.; Sakharova, A. A.; Zhirova, L. V. (Inst. Elementoorg. Soedin., Moscow, USSR). *Izv. Akad. Nauk SSSR, Ser. Khim.* 1970, (1), 183–4 (Russ). To 12 g NaOH in 60 ml H_2O was added at 1–5° 35 g 9,9-bis(*p*-hydroxyphenyl)fluorene, followed by 31.4 g CH_2:CMeCOCl to yield after 3 hr 50% 9,9-bis(*p*-methacryloyloxyphenyl)fluorene, m. 201–3°.

G. M. Kosolapoff

1/1

REEL/FRAME 19841655

7

USSR

UDC 576.312.3

SAKHAROVA, M. N., RAPOPORT, I. A., BEKNAZAR'YANTS, M. M., and NIKOFOROV, Yu. L.,
Institute of Chemical Physics, Academy of Sciences USSR

"Puffs Induced by Thiocyanate and the Puff Model For Determining Drug Injury to Enzymes"

Moscow, Doklady Akademii Nauk SSSR, Vol 196, No 5, 1971, pp 1,217-1,220

Abstract: The modification of Drosophila chromosome puffs induced by sodium thiocyanate added to the nutrient medium in a concentration of 2×10^{-4}M was investigated. As a result of corporation of this compound, the number of puffs increased from 26 (control) to 28 in X-chromosomes; from 17 to 24 in 2L-chromosomes; from 21 to 23 in 2R-chromosomes; from 24 to 28 in 3L-chromosomes; and from 22 to 28 in 3R-chromosomes. Significant changes were also observed in the morphology of other puffs and in the activity of chromosome enzymes. This method appears to be very useful in the study of the biological effects of drugs on pathogens and on the host.

1/1

USSR

UDC 612.822.1:547.952]:576.851.551.097.29-06:
612.015.12

KRYZHANOVSKIY, G. N. and SAKHAROVA, O. P., Laboratory of the Pathophysiology of Infectious Intoxications, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Effect of Neuraminidase on the Protagon-Tetanus Toxin Complex"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 6, 1972, pp 36-38

Abstract: The addition of neuraminidase (5 to 50 mg/ml) to a mixture of protagon (50 mg) homogenized in 0.85% NaCl solution and tetanus toxin (1 mg) resulted in the appearance of sialic acid and tetanus toxin in the supernatant. The effect was dose-dependent: the larger the amount of neuraminidase added, the greater the amount of sialic acid and tetanus toxin in the supernatant. This was caused by the splitting off of sialic acid from the gangliosides. Tetanus toxin is bound with gangliosides and, consequently, with its receptor in brain tissue through ganglioside sialic acid.

1/1

USSR

SARATIKOV, A. S., VOLOSHINA, E. I., REVINA, T. A., and SAKHAROVA, S. A.,
Tomsk State Medical Institute, Tomsk

"Energy Metabolism of the Brain in Acute Hypoxic Hypoxia"

Novosibirsk, Izvestiya Sibirskogo Otdeleniya Akademii Nauk SSSR, Seriya Biologicheskikh Nauk, No 5, Apr 71, pp 119-126

Abstract: Hypoxia was produced in rats by placing individual animals into a chamber with a capacity of 1.5 liters in which CO_2 was absorbed by a 20% solution of NaOH. Severe hypoxia, as indicated by slowed respiration and spasmodic gasping for air, developed in approximately one hour. At that time the O_2 pressure in the chamber was 40-60 mm and the CO_2 content in it less than 0.2%. As a result of the hypoxia that developed, the content of ATP, ADP, AMP creatine phosphate, glucose, and glycogen in the brain tissue of the animals decreased. The decrease in the level of macroergic phosphates was due to an inadequate resynthesis of the latter in consequence of a distributed conjugation between oxidation and phosporylation and also to an increased rate of decomposition because of activation of the mitochondrial ATP-ase. The disturbance of conjugation was established on the basis of a decrease of
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USSR

SARATIKOV, A. S., et al., Izvestiya Sibirskogo Otdeleniya Akademii Nauk USSR, Seriya Biologicheskikh Nauk, No 1, Apr 71, pp 119-126

the P/O index in experiments on mitochondria separated by centrifuging and a drop in the respiratory control of phosphorylation in the mitochondria. The relative increase in free oxidation was apparently associated with damage to the ultrastructure of mitochondria of the brain tissue. The fact that the mitochondrial ATP-ase was activated followed from an increase in the amount of inorganic phosphate that was formed on incubation with ATP. The intensification of anaerobic glycolysis in the brain in hypoxia evidently did not offset to a sufficient degree the depletion of energy resources in brain tissue.

2/2

USSR

UDC 615.225.2.015.4:612.82.013.7

SARATIKOV, A. S., VOLOSHINA, E. I., and SAKHAROVA, S. A., Chair of Pharmacology and Central Scientific Research Laboratory, Tomsk Medical Institute

"Effect of Aminophylline on Metabolism in the Brain During Hypoxia"

Moscow, Zhurnal Nevropatologii i Psikhiatrii imeni S. S. Korsakov, Vol 70, No 7, 1970, pp 995-999

Abstract: In vivo and in vitro experiments on rats showed that aminophylline (diaphylline) (2 mg/100 g) acts directly on the respiratory cycle of the cell. In intact animals, aminophylline intensified tissue respiration in the brain without affecting the respiratory quotient. For in vivo experiments and at high concentrations (1:5,000 to 1:1,000), it decreased the intensity of tissue respiration substantially. In hypoxic animals, aminophylline increased tissue respiration in the brain and normalized the respiratory quotient. Addition of the preparation to a brain homogenate of hypoxic animals increased both the consumption of oxygen and the release of carbon dioxide. Biochemical analysis revealed that aminophylline increased succinic dehydrogenase and cytochrome activity while decreasing that of NADH. In hypoxic animals, it increased the activity of all three enzyme systems. In brain mitochondria, aminophylline impaired oxidative phosphorylation, caused the organelles to swell, and decreased the content of macroergic phosphates, partially as a result of the activation of mitochondrial adenosinetriphosphatase.

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USSR

UDC 547.26'118

MASTRYUKOVA, T. A., SAKHAROVA, T. B., and KABACHNIK, M. I., Institute of Heteroorganic Compounds, Academy of Sciences USSR

"Benzoylation of Ammonium Diethyl Thiophosphate"

Leningrad, Zhurnal Obshchey Khimii, Vol 41, No 1, Jan 71, p 239

Abstract: V. G. PESIN and I. G. VITENBERG previously reported the S-benzoylation of ammonium diethyl thiophosphate with benzoyl- and p-nitrobenzoyl chlorides. This contradicted an earlier finding by the authors of the present article concerning O-acetylation of ambident dialkyl thiophosphate anions. The authors carefully studied the structure of the substances obtained by PESIN and found them to be O-benzoyl derivatives.

1/1

USSR

UDC 621.791.762.5:546.621

SAKHATSKIY, G. P., Candidate of Technical Sciences, and MEL'NIKOV, R. V., Engineer, Institute of Electric Welding imeni Ye. O. Paton

"Contact Butt Welding of an SAP Alloy"

Kiev, Avtomaticheskaya Svarka, No 5, May 73, pp 28-30

Abstract: A study was made of the weldability and mechanical properties of SAP alloy weld joints. Strip, rod, and pipe were welded by the contact-butt method. Analysis of mechanical properties of the differently welded materials showed that a tensile strength almost equal to the base-metal tensile strength was achieved when welding time was three seconds. For longer welding periods the joints become weakened and their strength drops to 82-86% of that of the base metal. In welding 1.5-mm strip the tensile strength was 92.2% of the base metal strength while for 3-mm strip this value was 87.6% and for 7-mm thick strip -- 86%. Impact strength of 3-mm strip was 1.05 kGm/cm^2, or 70% of the base metal impact strength. When the same size strip was preheated, impact strength was 22 kGm/cm^2, which was greater than the base metal strength. Impact strength of 7-mm strip was 67.7% of the base metal impact strength. Rod, 22 mm in diameter, welded with preheating and continuous melting, had weld joint tensile strengths equal to 82-86% of the base metal strength. Pipe, 41-mm O.D. and 38-mm I.D., had a strength of 84.7% of the base metal strength. 6 figures, 2 bibliographic references.

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USSR

UDC 621.791.762.5

SAKHATSKIY, G. P., and A. P. BUTNIK (Electric Welding Institute imeni Ye. O. Paton, Academy of Sciences Ukrainian SSR)

"Properties of Joints Made by Butt Welding in Forming Jigs"

Kiev, Avtomaticheskaya svarka, No 4, Apr 72, pp 56-58

Abstract: The formation of joints by flash butt welding is a complex physicochemical process controlled by heating and plastic deformation. Described here is a butt welding technique involving the use of forming jigs and permitting the control of volumetric stress, the nature of the plastic deformation with upsetting, and thus control of both the weldability of the metals and the weld quality. Under optimum conditions the use of jigs increases the upsetting force by 15-20% as compared to welding without forming. In most cases, the static strength and plasticity of the welds is close to that of the parent metal. The increase in notch toughness in resistance butt welding using shaping jigs as compared to conventional welding is attributed to a more intensive directional plastic deformation. (2 illustrations, 3 bibliographic references)

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AA0040852

UR 0482

1-70

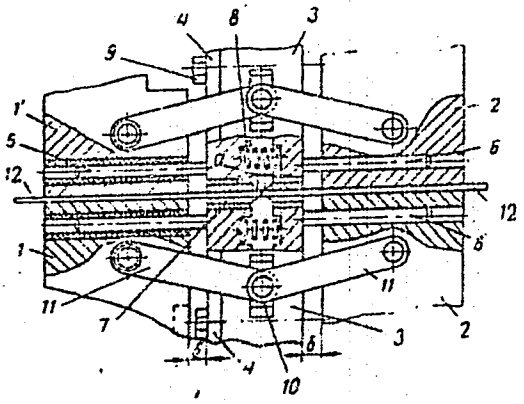
Soviet Inventions Illustrated, Section I Chemical, Derwent,

240888 REMOVING OF BURRS IN ELECTRICAL RESISTANCE WELDING OF PLATES, involves using knives 7 which cut off burrs on the two sides of the plates after completing the upsetting stroke. The two welded plates 12 are held in clamping blocks 1', 1, and 2,2'.which in welding operation are driven one against the other till the clearances δ between the blocks and central welding unit (parts 3 and 4) become zero. At that instant the knives which are electrically insulated from the rest of the machine are pushed forward, remove the burrs and also plastically deform the weld which considerably improves its quality.

AUTHORS: Tishura, V. I.; Sakharnov, V. A.; Galyan, B. A.; Yavorskiy, Yu. D.; and Sekhatskiy, G. P.

19750236

AA0040652



3.4.67 as 1144854/25-27 Add to 217556. V.I.TISHURA et alia. E.O. PATON'S ELECTRICAL WELDING INST. (22.8.69) Bul 13/1.4.69. Class 21h. Int.Cl.H 05b.

19750237 LD

1/2 Institut Elektrosvarki imeni E. O. Patona

AA0040710

UR 0482

Soviet Inventions Illustrated, Section I Chemical, Derwent, 3-70

235861 RESISTANCE BUTT WELDING of homogeneous material, which have a tendency to brittleness, involves using instead of a straight butt a saw-tooth shaped or undulating joint of the two facing plates. During the upsetting operation, the projections of one end match the depressions of the other end. The zig-zag line of fusion prevents the origin or cracks. 4.9.67. as 1185267/25-27.
V.K.LEBEDEV et alia. E O.Paton Electrowelding Inst.
(4.7.69.) Bul.6/24.1.69. Class 21h. Int.Cl. B23k.

AUTHORS: Lebedev, V. K.; Yavorskiy, Yu. D.; Sakhatskiy, G. P.; Yushchenko, K. A.; and Onishchenko, P. M.

Institut Elektrosvarki imeni Ye. O. Patona

1975034?

USSR

UDC: 517.9:535

SAIHAY.V. Sh.

"Computing the Amplitudes of Electromagnetic Stationary Oscillations"

V sb. Differents. uravneniya i ikh primenenive (Differential Equations and Their Applications--collection of works) Alma-Ata, "Nauka," 1970, pp 69-92 (from RZh-Matematika, No. 3, March 71, Abstract No. 3B306)

Translation: A system of stationary Maxwell equations is considered in a three-dimensional, limited convex surface region which is free of sources. Fifteen boundary value problems are posed, each specifying a pair of components of the vectors E and H at the boundary The problem with given normal components is studied in detail. The problem is reduced to a system of integral Fredholm equations, and some evaluations for the kernels are obtained. Ye. Vorob'yëv

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1/2 011 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--DEGRADATION OF DIOCTAHEDRAL HYDROMICA -U-

AUTHOR--SAKHIBGAREYEV, R.S.

COUNTRY OF INFO--USSR

SOURCE--LITOL. POLEZ. ISKOP. 1970, (1), 71-8

DATE PUBLISHED-------70

SUBJECT AREAS--EARTH SCIENCES AND OCEANOGRAPHY

TOPIC TAGS--GEOCHEMISTRY, MINERAL, WEATHERING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/1708 STEP NO--UR/9103/70/000/001/0071/0078

CIRC ACCESSION NO--AP0118686

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 011

CIRC ACCESSION NO--AP0118686

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DEGRADATION OF THE DIOCTAHEDRAL HYDROMICA WAS STUDIED ON QUARTZ SERICITE SCHISTS OF THE WESTERN SIBERIAN PLAIN AND OF THE SURFACE LAYERS OF THE CHADOBETS DOME OF THE SIBERIAN PLATFORM. UNALTERED SCHIST CONSISTS OF HYDROMICA AND SERICITE. PRODUCTS OF CHEM. WEATHERING OF THE SCHISTS WERE FOUND AT DEPTHS OF 1500-1650 M. NO TRACES OF HYDROMICA DEGRADATION WERE ESTABLISHED. IN HIGHER STRATA, A STRONG KAOLINIZATION OF THE SCHIST AND A SMALL DEGRADATION OF HYDROMICA WERE EVIDENT. THIS DEGRADATION IS EXPRESSED ONLY BY THE PARTIAL EXTN. OF THE INTERLAYER K. ACCORDINGLY, THE DECOMPN. OF SERICITE AND HYDROMICA REPRESENTS A TOTAL DESTRUCTION OF THEIR CRYST. STRUCTURE. THE WEATHERED HYDROMICA CONTAINS UP TO 30PERCENT OF SWELLING MONTMORILLONITE LAYERS. THIS INDICATES THAT THE HYDROMICA, TRANSFERRED BY FRESH WATER, DOES NOT SUFFER VERY DEEP STRUCTURAL TRANSFORMATION. KAOLIN FORMATION IN WEATHERED SCHIST IS CONNECTED WITH THE NEG. POLYMORPHIC TRANSFORMATION OF HYDROMICA, WITHOUT THE FORMATION OF INTERMEDIARY PHASES. THE DEGRADATION OF HYDROMICA RESULTS IN COMPLETE DESTRUCTION AND THE FORMATION OF KAOLINITE.

FACILITY: GOS. NAUCH.-ISSLED. PROEKT. INST. GIPROTYUMENNEFTEGAZ, TYUMEN, USSR.

UNCLASSIFIED

1/2 015 UNCLASSIFIED PROCESSING DATE--29NOV70
TITLE--EFFECT OF REACTION CONDITIONS ON THE PREPARATION OF NITRO ALCOHOLS. VI. HYDRATION OF CHLORO SUBSTITUTED NITRO OLEFINS -U-
AUTHOR-(03)-BURMISTROV, V.I., FAKHRUTDINOV, R.Z., SAKHIBGARAYEVA, A.KH.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. KHIM. (LENINGRAD) 1970, 43(4), 915-17

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--HYDRATION, CHLORINATED ALIPHATIC COMPOUND, ORGANIC NITRO COMPOUND, BUTENE, BUTANOL, PROPYLENE, PROPANOL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3004/1942 STEP NO--UR/0080/70/043/004/0915/0917

CIRC ACCESSION NO--AP0132203

UNCLASSIFIED

2/2 015 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AP0132203

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF TIME, TEMP., MOLAR RATIO OF THE REAGENTS, SOLVENTS, BASE AND ACID ADDNS. ON THE HYDRATION OF 1,1,1,TRICHLORO,3,NITRO,2,PROPENE (I) AND 1,1,1,TRICHLORO,3,NITRO,2,BUTENE (II) TO 1,1,1,TRICHLORO,3,NITRO,2,PROPANOL (III) AND 1,1,1,TRICHLORO,3,NITRO,2,BUTANOL (IV), RESP., WAS STUDIED. COMPARISON OF THE HYDRATION OF I AND 1,NITROPROPYLENE SHOWED THAT THE REACTION EQUIL. WERE MORE FAVORABLE FOR THE HYDRATION OF I AT THE SAME TEMP. HOWEVER, THE RATE OF HYDRATION OF I WAS LOWER. THE USE OF DIOXANE OR ME SUB2 CO SOLVENTS GAVE A LOWER TEMP. HOMOGENEOUS PHASE REACTION. HOWEVER, THE HYDRATION OF I IN DIOXANE GAVE III SOLVENT ADDUCT, M. 98DEGREES, WHICH WAS STABLE UNDER REACTION CONDITIONS AND DECOMPD. ONLY AT 130DEGREES IN VACUO TO GIVE PURE III. THE ACIDS HAD LITTLE EFFECT ON THE HYDRATION OF I, EXCEPT AT HIGH CONCNS. OF THE STRONG ACIDS WHERE INHIBITION OCCURRED. A SLIGHT CATALYTIC EFFECT OF THE BASES WAS OBSD. IT WAS FOUND THAT THE HYDRATION OF I WAS BEST CARRIED OUT IN THE ABSENCE OF BOTH SOLVENT AND OTHER ADDITIVES. IN THE BEST RUN, VIGOROUS STIRRING OF 0.1 MOLE I WITH 1 MOLE H SUB2 O 10 HR AT 100DEGREES, FOLLOWED BY WORK UP GAVE 90PERCENT III, D SUB4 SUP25 102DEGREES, M. 45DEGREES. ATTEMPTS TO HYDRATE II WERE GENERALLY UNSUCCESSFUL, ONLY THE HYDRATION IN DIOXANE GAVE 5PERCENT IV, D SUB4 97DEGREES, N PRIME20 SUBD 1.5020, D PRIME20 1.5520. FACILITY: KAZAN. KHIM.-TEKHNOL. INST. IM. KIROVA, KAZAN, USSR.

UNCLASSIFIED

USSR

UDC 598.196:577.15

SAKHIBOV, D. N., AKHUNOV, A., and SADYKOV, E., Institute of Biochemistry Academy of Sciences, Uzbek SSR

"Isolation of ATP-Pyrophosphatase and 5-Nucleotidase From Viper Venom"

Tashkent, Uzbekskiy Biologicheskiy Zhurnal, No 4, 1971, pp 67-68

Abstract: Gel filtration of a 10% solution of viper venom yielded four fractions. ATP-pyrophosphatase and 5-nucleotidase activity were detected in the first fraction (and in part in the second fraction). The specific activity of the ATP-pyrophosphatase in the first fraction was 10.8 times higher than that of the whole venom, while 5-nucleotidase activity was 10.2 times higher. Further purification of this fraction by ion-exchange chromatography resulted in four fractions, but enzyme activity was detected in only the first. The specific activity of ATP-pyrophosphatase and 5-nucleotidase was 13.5 and 16.6 times higher, respectively, than that of the whole venom.

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1/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--ISOLATION OF PHOSPHOLIPASE A FROM THE VENOM OF THE CENTRAL ASIAN COBRA -U-

AUTHOR-(03)-SAKHIBOV, D.N., SOROKIN, V.M., YUKELSON, L.YA.

COUNTRY OF INFO--USSR

SOURCE--BIOKHIMIYA 1970, 35(1), 13-16

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--VENOM, ELECTROPHORESIS, CHROMATOGRAPHY, PROTEIN, ABSORPTION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1999/1159

STEP NO--UR/0218/70/035/001/0013/0016

CIRC ACCESSION NO--AP0123136

UNCLASSIFIED

2/2 026 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0123136

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. TWO FRACTIONS POSSESSING PHOSPHOLIPASE A (I) ACTIVITY WERE ISOLATED FROM THE VENOM OF NAJA OXIANA (SNAKE) USING SEPHADEX G-75 GEL FILTRATION AND CHROMATOG. ON CM CELLULOSE. ONE FRACTION WAS PURE (POLYACRYLAMIDE GEL ELECTROPHORESIS AT PH 4.7, 7.1, 8.6, AND 8.8) AND THE MOL. WT. OF I WAS 14-15,000 (GEL FILTRATION). ABSORPTION SPECTRA SHOWED A MAX. AT 280 M MU; M EXTINCTION COEFF WAS 2.2-2.3 TIMES 10 PRIME4 AS CALCD. FROM THE ABSORPTION OF A 0.1PERCENT I SOLN. THE OTHER I FRACTION WAS CONTAMINATED WITH PROTEIN AS EVIDENT FROM POLYACRYLAMIDE GEL ELECTROPHORESIS, WHICH PRODUCED 2 BANDS. FACILITY: INST. BIOCHEM. TASHKENT, USSR.

UNCLASSIFIED

SAKHARNIKOV, V. N.

UDC 621.373.826:621.397

"Interference-Free Transmission of Television Signals in an Optical Communication Line With Pulse-Code Modulation"

Tr. ucheb. in-tov svyazi. M-vo svyazi SSSR (Works of the Educational Institutes of Communication. USSR Ministry of Communication), 1972, vyp.58, pp 141-148 (from RZh-Radiotekhnika, No 11, Nov 72, Abstract No 11 D296)

Translation: The author studies the interference-free transmission of TV signals in an optical line of communication with pulse-code modulation. Methodology is given for determining the minimal power of the flow of light at the input of the photoreceptor for a given signal/noise ratio at various binary pulse numbers in the code group. At a given interference-free operation of the system, the optimal combination of the significance of the code and the power of the received radiation is determined with respect to the minimum power criterion. Original article: one illustration, two tables, and five bibliographic entries. Resume.

1/1

USSR

UDC 669.018

SAKHNO, G. A., Dnepropetrovsk State University imeni 300th Anniversary of the Reunion of the Ukraine With Russia

"Crystallization of Liquid Appearing in Contact Melting"

Tomsk, Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 8(111), 1971, pp 7-12

Abstract: Crystallization of liquid forming in the contact melting of thin films abutting each other and of liquid escaping from the seam of cylindrical specimens of the alloys Sn-Bi, Cd-Bi, and Sn-Pb is investigated. A holder containing cylindrical specimens of the metals in contact pressed with their faces one against the other by means of springs was placed in a thermostat and held at a temperature close to the eutectic point (the Sn-Bi alloy at $139^{\circ}\pm0.2^{\circ}$, the alloy Cd-Bi -- $144^{\circ}\pm0.2^{\circ}$, and the alloy Sn-Pb -- $183^{\circ}\pm0.2^{\circ}$) until the required amount of melt issued from the specimens in contact. The resulting drop was again melted and by means of metal plates and mica flakes was placed in a special holder, where secondary melting and crystallization took place at different rates of cooling and isothermal exposure. Also studied was crystallization in the zone of melting of pure components first obtained in the form of films and then butted together. The structure of the crystallized layer was determined by microrontgenography in Fe-radiation.
1/2

USSR

SAKHNO, G. A., Izvestiya Vysshikh Uchebnykh Zavedeniy, Fizika, No 8(111), 1971, pp 7-12

It is assumed that the liquid phase formed in contact melting is inhomogeneous as to composition even at a melting point close to the eutectic. No primary solid solutions were found to be formed in the unmelted part of the films of the components in the areas of contact of the liquid with the component films. In contrast to literature data, chemical analysis of the alloy streaming from the seam of specimens melting at the eutectic point showed the alloy to be post-eutectic relative to the heavier element in terms of specific weight. And the distribution of phase components in the liquid formed in contact melting varies strongly with degree of overheating. The structural sequence of crystallization was described for the alloys.

2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CHARACTERISTICS OF THE CRYSTALLIZATION OF EUTECTICS FOR SLIGHT SUPERCOOLINGS -U-

AUTHOR-(04)-SALLI, I.V., FOMICHEV, O.I., SAKHNO, G.A., KHABLO, T.V.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V.U.Z. TSVETNAYA MET., 1970, (2), 126-130.

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--LEAD ALLOY, TIN ALLOY, CRYSTALLIZATION, EUTECTIC MIXTURE, SUPERCOOLING

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3003/1502 STEP NO--UR/0149/70/000/002/0126/0130

CIRC ACCESSION NO--AT0130431

UNCLASSIFIED

2/2 021 UNCLASSIFIED

CIRC ACCESSION NO--AT0130431 PROCESSING DATE--04DEC70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHYSICAL NATURE OF THE PROCESSES UNDERLYING THE FORMATION AND SOLIDIFICATION OF EUTECTICS IN VARIOUS ALLOYS (E.G.PB,SN) IS DISCUSSED IN THE LIGHT OF THE LATEST THEORETICAL AND EXPERIMENTAL DATA, WITH SPECIAL REF. TO THE PART PLAYED BY THE DEGREE OF SUPERCOOLING INVOLVED. THUS, FOR EXAMPLE, THE FORMATION OF AN ESSENTIAL EUTECTIC COLUMN ONLY BECOMES POSSIBLE FOR FAIRLY SUBSTANTIAL SUPERCOOLINGS AND SUPERSATURATIONS. BEFORE THESE CONDITIONS ARE ACHIEVED THERE IS A TENDENCY FOR TWO 'PSEUDO PRIMARY' PHASES TO SEPARATE, AND ONLY LATER DOES TRUE EUTECTIC SOLIDIFICATION SET IN.

UNCLASSIFIED

USSR

UDC: 632.95

SERGEYEV, L. I., KULAKOV, V. N., BELYSHEV, L. K., KUZNETSOVA, M. G., SAKHNOV, N. S.

"Experience in the Use of N-1 Fraction as a Herbicide"

Moscow, Khimiya seraorgan. soyedin., soderzhashchikhsya v neftyakh i nefteproduktakh--sbornik (Chemistry of Organosulfur Compounds Present in Petroleum and Petroleum Products--collection of works), T. 9,"Vyssh. shkola", 1972, pp 60-65 (from RZh-Khimiya, Vol 10, May 73, abstract No 10N594 by T. A. Belyayeva)

Translation: Data are presented on the physiological activity and possibility for practical utilization of the narrow fraction of high-sulfur aromatic extract called N-1. The initial raw material was light gas oil of catalytic cracking. The sulfurous aromatic compounds are extracted with furfurol and "kalosha" gasoline. After the solvents are driven off, a sulfur-aromatic concentrate is obtained from which a narrow fraction is isolated by rectification with the following characteristics: boiling range 250-285°C, density 0.99, molecular weight 152, sulfur content 4.6%, content of aromatic hydrocarbons 78%, including 56% bicyclic. The hydrocarbons are chiefly dimethyl

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SERGEYEV, L. I., et al., Chemistry of Organosulfur Compounds Present in Petroleum and Petroleum Products -- collection of works, T. 9, "Vyssh. shkola", 1972, pp 60-65

naphthalines. The organosulfur compounds consist mainly of alkyl derivatives of benzothiophene. For using N-1 fraction as a herbicide or growth stimulator, aqueous emulsions are prepared using OP-7 or OP-10. Laboratory and field experiments are done with concentrations of 0.00001, 0.0001, 0.001, 0.01, 0.1, 1 and 10%. Depending on the concentration, N-1 fraction has herbicidal (0.01-10%) or stimulating (0.001-0.0001%) properties for flowering plants. Even a 1% emulsion of N-1 is heavily damaging to Stellaria media (chickweed). In the appropriate quantities N-1 is a contact herbicide and is most effectively used in controlling annual weeds.

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GENERALIZED WAVE OPERATORS AND REGULARISATION OF THE PERTURBATION THEORY

L. A. Sakhnovich

The generalisation is made of the already known notions of the generalized wave operator and of the generalized scattering operator. Then we prove the existence of the generalized wave operators for the Friedrichs model with a discontinious kernel and for differential operators with the Coulomb type potentials. The results obtained are applied to the problem of the regularization of the series of perturbation theory. The 1-st member of the regularized series is calculated.

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Burn Studies

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BURMAN, L. M. and SAKHNOVSKAYA, G. K., L'vov Institute of Hematology and Blood Transfusion

"Morphological and Functional Changes in Mast Cells and Their Role in Mobilizing the Defense Processes at the Site of a Thermal Burn"

Moscow, Byulleten' Eksperimental'noy Biologii i Meditsiny, No 4, 1971, pp 30-34

Abstract: Mast cells, a morphological indicator of stress, were the first to react to a burn inflicted on rats. Within one hour of the trauma they increased in number and size and began to degranulate. Neutrophil infiltration increased after 12 hours mainly in the deep, intact layers of muscle. After 24 hours the neutrophil barrier also embraced the subcutaneous tissue. The neutrophils and other blood elements reacted actively to alkaline phosphatase. This reaction and increased phagocytosis resulted from the release of highly sulfated mucopolysaccharides by the mast cells. Thus mast cells play an important role in the body's defenses against burns and other pathological factors.

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SAKHNOVSKAYA, M., Special Correspondent of Meditsinskaya Gazeta

"The Brain and Psychology"

Moscow, Meditsinskaya Gazeta, 6 Sep 72, p 3

Translation: Representatives of medicine, biology, neurophysiology, psychology, pedagogy, sociology, philosophy, art, and technology devote their research to the study of various aspects of the brain's activity. This is explained by its exceptional role in the life of man and human society.

This is why the International Symposium on the Problem of "Neurophysiological Mechanisms of Mental Activity," which was held in Leningrad, assembled prominent scientists from our country, Bulgaria, Hungary, the GDR, England, Holland, the United States, Finland, France, the FRG, and Sweden.

The symposium was opened by Corresponding Member of the Academy of Sciences and Academy of Medical Sciences USSR N. Bekhtereva, chairman of the organizing committee, who emphasized the importance of the problem under discussion to the theory and practice of medicine, to sociology, and to philosophy. One solution or another to the problem of cerebral provisions for mental activity underlies various philosophical trends and concepts.

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SAKHNOVSKAYA, M., Meditsinskaya Gazeta, 6 Sep 72, p 3

The interpenetration of two sciences -- physiology and psychology -- characterizes the current stage of the study of the brain. Neurophysiologists resort more and more often in their research to psychological tests, and psychologists are using neurophysiological methods extensively.

The scientific and technical revolution has placed in the hands of researchers very fine methods for studying the brain. As Academician P. Anokhin believes, however, the strategy consists chiefly in formulating, without losing the advantages of fine analytical methods, the general principles of the operation of the brain and in advancing synthetic ideas which would make it possible to determine the place and importance of the individual neuron and its synapses in the complex system of nervous mechanisms.

The shortage of such concepts in science often reduces to the failure to use numerous results of fine electronic studies, which is felt particularly in the study of behavioral acts and leads to added costs in the development of methods for the treatment, diagnosis, and prevention of diseases.
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The prerequisites for a decisive advance in the study of this problem were created by the application of humerous permanent electrodes implanted in the brains of patients for diagnosis and treatment.

Under these conditions it proved possible and necessary to record various indicators of brain vital activity: an electrosubcorticogram, cellular activity, slow electrical potentials, local blood circulation, sodium concentration, and others. Many years of observations have enabled N. Bekhtereva and her associates to advance a hypothesis about how the mental activity of the cerebral structural-functional systems is guaranteed with links of varying degrees of rigidity. The rigid links "operate" constantly, while flexible links are switched on as the need arises. Great prospects are hidden in the use of a biocontrolled feedback experiment. Its possibilities play a leading role in a very important new direction of work in this area -- the decoding of the neurophysiological code of mental phenomena.

One of the section's most interesting works was the determination of the phenomenon of error detection. The cerebral apparatus for controlling the correctness of an action plays an important role in the implementation of

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P. Anokhin's report was devoted to the systems aspect in the working out of boundary problems of neurophysiology and psychology. His theory of functional systems as a methodological tool helps to overcome the shortcomings of the isolationism of analytical research and to alter approaches and means of solving a number of fundamental problems of the brain.

The general theory of functional systems has made it possible to view in a new light the problems of emotions and motivations. The traditional desire to explain them as independent processes and brain mechanisms held up the development of our knowledge about the formation of behavioral acts. How these mechanisms are included in the operation of the entire brain and determine expedient behavior could be explained only after they had been made an inseparable part of a functional system.

In-depth, diverse studies of the neurophysiology of the mind, which are being conducted at the Division of Applied Neurophysiology of the Institute of Experimental Medicine of the Academy of Medical Sciences USSR were represented at the symposium by a series of reports and speeches that confirmed the possibility of decoding the material principles of the mental activity of the brain.

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studied the feedback of a response to the slow brain potentials of a type of phenomenon discovered by G. Walter -- anticipation waves.

The flow of blood and its dynamics are indicators of the activity of the brain and of its individual sections. There exists a direct relation between the functional activity of the brain and the flow of blood. Using original methods, D. Ingvar [transliterated] (Sweden) established a fine interrelation between normal and pathological brain phenomena and regional blood circulation.

The problems of organizing complex behavioral acts and the orientation of man in time and space have long attracted researchers. The works of V. Keydel' [transliterated] (FRG), who has studied spatial and temporal aspects of image recognition in man, and of A. Shtovm-van-Leuven [transliterated] (Holland), who explained the relationships between congenital brain rhythms and mental activity in man, draw us closer to their solution.

Reports by K. Hecht and R. Baumann titled "Statistical Principles of Data Processing in the Central Nervous System During Stabilized or Disrupted Communications Between the Organism and the Environment" and of Kh.

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mental activity. The switching on of this apparatus mobilizes additional brain potentialities and improves the conditions of its activity. The significance of the phenomenon of error detection in the execution of mental activity was demonstrated in a report by V. Grechin.

A mathematical analysis of the phenomena of the coding of mental processes was presented by Yu. Gogolitsin and A. Kaplunovskiy.

Thanks to the use of electrical stimulation of the human brain, it has been possible to augment knowledge on the functional anatomy of mental activity (V. Smirnov).

The problem of an artificial intellect was touched on in a number of reports. The works of N. Amosov (Kiev) are convincing as to the need and efficaciousness of the search in this direction in order to improve the control of human behavior. He characterized in detail a complex of methodological approaches to the modeling of the mechanisms by which the brain operates.

The report by G. Walter (Great Britain) and G. Weinberg (United States) was characterized by the great depth at which the problem was covered. They